



Method of preparing grinding media consisting essentially of sintered TiO₂ particles

Description of Technology: The present invention relates to methods of preparing grinding media consisting essentially of sintered titanium dioxide (TiO₂) particles and to the resulting grinding media produced by such methods. The invention further encompasses methods of using such grinding media in media mills for reducing the particle size of particulate material, particularly titanium dioxide pigments.

Patent Listing:

1. **US Patent No. 6,036,999**, Issued March 14, 2000, "Method of preparing grinding media consisting essentially of sintered TiO₂ particles"

<http://patft.uspto.gov/netacgi/nph-Parser?Sect2=PTO1&Sect2=HITOFF&p=1&u=%2Fnetacgi%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&d=PALL&RefSrch=yes&Query=PN%2F6036999>

Market Potential: Media-milling is an established technology for reducing the particle size of particulate material such as titanium dioxide (TiO₂), and media-milling equipment is commercially available. Typically, when TiO₂ particles are media-milled, a slurry of TiO₂ particles is fed into a grinding chamber charged with grinding media. The grinding media are stirred in the grinding chamber by a series of discs attached to a rotating shaft. The motion of the stirring discs and grinding media is perpendicular to the direction in which the slurry is pumped; thus, the TiO₂ particles are sheared by the media. A screen is often used to keep the grinding media inside the grinding chamber, while allowing the TiO₂ slurry to flow out of the mill. Media-milling may be performed with various types and shapes of grinding media such as beads, sand, or pebbles. Other examples of grinding media include particles of zirconium silicate, alumina, silicon carbide, silica, and zirconia. Often, the media-milling process is adjusted to provide a final product having the desired particle size, optics, durability, gloss, and dispersibility.

Benefits:

- Using grinding media in media mills for reducing the particles size of particulate material

Applications:

- Preparing grinding media consisting of sintered titanium dioxide particles.

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